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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,002	08/04/2000	Keiji Ishibashi		2248

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BAKER & DANIELS
111 E. WAYNE STREET
SUITE 800
FORT WAYNE, IN 46802

EXAMINER	
MARKHAM, WESLEY D	
ART UNIT	PAPER NUMBER
1762	12

DATE MAILED: 12/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

mk-12

Office Action Summary	Application No.	Applicant(s)	
	09/633,002	ISHIBASHI, KEIJI	
	Examiner	Art Unit	
	Wesley D Markham	1762	

-- The MAILING DATE of this communication appears on the cover she t with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-16 and 21-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-16 and 21-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application (i.e., as paper #10 on 10/1/2002) after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/1/2002 (i.e., amendment C, paper #11) has been entered.

Response to Amendment

2. Acknowledgement is made of applicant's amendment C, filed as paper #11 on 10/1/2002, in which the specification of the instant application was amended, Claim 11 was amended, and Claims 21 – 32 were added. Claims 11 – 16 and 21 – 32 are currently pending in U.S. Application Serial No. 09/633,002, and an Office Action on the merits follows.

Drawings

3. The formal drawings (2 sheets, 3 figures) filed on 8/4/2000 are approved by the examiner.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. In the instant application, the abstract of the disclosure submitted by the applicant is two paragraphs. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 21 – 26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
7. Regarding newly added independent Claim 21 (from which Claims 22 – 26 depend), the claim requires locating the "hot element" outside of the chamber, and then introducing the cleaning gas (i.e., which has been activated through contact with the "hot element") into the chamber to clean the chamber of a deposited film. This limitation does not have support in the specification as originally filed. Specifically, nowhere in the specification as originally filed is it indicated that the "hot element"

can be located outside of the chamber. On page 8 of the response filed by the applicant on 10/1/2002, the applicant states that support for such a limitation is found on pages 10 and 11 of the specification. The examiner has carefully reviewed this section of the specification. The only location disclosed for the "hot element" other than the location shown in applicant's Figure 1 (i.e., inside the chamber) is inside the gas supply vessel (page 10, lines 1 – 2). However, the gas supply vessel "2" is located inside the chamber (see Figure 1), and therefore, even if the "hot element" is located inside the gas supply vessel, it is still located inside the chamber. The applicant's specification as originally filed has no support for a "hot element" outside of the chamber, and therefore Claims 21 – 26 contain "new matter" under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 11 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Dietz et al. (USPN 4,452,642).

10. Regarding independent Claims 11 and 27, Dietz teaches a method for removing a deposited film from a wall inside a chamber (Abstract and Col.3, lines 26 – 40), the

method comprising providing a "hot element" in the chamber, the hot element disposed away from the wall of the chamber and the deposited film (Figure, reference number "2", and Col.4, lines 8 – 42), the hot element having at least a surface which is comprised of platinum (Col.3, lines 1 – 6), exhausting the chamber (Col.3, lines 35 – 40, and Col.4, lines 22 – 25), heating the hot element to 400° C or higher (Col.3, lines 1 – 11), supplying a cleaning gas into the chamber and first contacting the hot element with the gas to thereby activate the gas (i.e., generate an activated species therefrom) (Figure, Col.1, lines 65 – 68, Col.2, lines 1 – 62, and Col.4, lines 8 – 21), contacting the deposited film with the activated cleaning gas to convert the deposited film into a gaseous substance, and removing the gaseous substance from the chamber (Col.2, lines 39 – 62, Col.3, lines 26 – 40, and Col.4, lines 22 – 25).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Please note that the rejection of Claims 11 – 16 under 35 U.S.C. 103(a) as being unpatentable over Matsuyama (USPN 5,149,375) in view of Niino et al. (USPN 5,637,153) (for Claims 11, 12, 15, and 16) and in further view of Iwasaki et al. (JP

03-226578 A) (for Claims 13 and 14), set forth in paragraphs 3 and 4 of the previous Office Action (i.e., the final Office Action, paper #8, mailed on 4/2/2002), is withdrawn in light of applicant's amendment C and corresponding remarks.

13. Claims 11, 12, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (USPN 6,101,972) in view of Dietz et al. (USPN 4,452,642) and Matsuyama (USPN 5,149,375).

14. Regarding independent Claims 11 and 27, Bluck teaches a method for removing a deposited film from a wall inside a chamber (Col.4, lines 40 – 46), the method comprising providing a "hot element" (i.e., filaments "32" and "42") in the chamber, the hot element disposed away from the wall of the chamber and the deposited film (Figure 2 and Col.6, lines 31 – 49), exhausting the chamber (Col.4, lines 48 – 55 and Col.6, lines 59 – 63), heating the hot element (Col.6, lines 38 – 39), supplying a cleaning gas into the chamber and first contacting the hot element with the gas to thereby activate the gas (i.e., generate an activated species therefrom) (Figure 2, reference numbers "32", "42", and "54", Col.6, lines 32 – 67, and Col.7, lines 1 – 6), and contacting the deposited film with the activated cleaning gas to clean the walls of the chamber (Col.4, lines 40 – 46, Col.6, lines 57 – 67, and Col.7, lines 1 – 6). Bluck does not explicitly teach that (1) the hot filaments have at least a surface which comprises platinum, (2) the hot filaments are heated to a temperature of 400° C or higher, and (3) the cleaning process involves converting the deposited film into a gaseous substance which is subsequently removed from the chamber. Regarding

issues (1) and (2), Bluck is silent with respect to the composition of the hot filaments and the temperature to which the filaments are heated. However, it is clear that the filaments are heated (Col.6, lines 38 – 41) and that the filaments should be capable of activating the etching / cleaning gases taught by Bluck (i.e., argon, fluorocarbons, chlorine-containing gases, hydrogen, and/or oxygen (Col.4, lines 38 – 46, Col.6, lines 50 – 67, and Col.7, lines 1 – 6). Dietz teaches that, when utilizing a hot filament to activate a cleaning gas such as hydrogen (e.g., which is a cleaning gas taught by Bluck) in order to subsequently clean the walls of a chamber, platinum is a suitable material for the filament, and the filament should be heated to a temperature above 1300° C to activate the cleaning gas (Col.3, lines 1 – 11). Further, Dietz teaches that, "at higher temperatures, the degree of dissociation (i.e., of the cleaning gas) was substantially higher" (Col.3, lines 10 – 11). In other words, Dietz teaches that the temperature of the filament is a result / effective variable that determines the degree of dissociation / activation of the cleaning gas. Matsuyama teaches that, in the art of using hot filaments to activate process gases, platinum is a desirable filament material in view of heat resistance and reaction resistance (Col.9, lines 5 – 16). In addition, Matsuyama teaches that the temperature of the filament is selected by taking into consideration the reactivity of the filament with various kinds of process gases and the heat resistance of the filament. Generally, the temperature is selected within a range of 800° C to 2000° C (i.e., above 400° C) (Col.9, lines 33 – 37). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a platinum filament as the filament in the process of Bluck with

the reasonable expectation of successfully and advantageously using a filament material that has high heat and reaction resistance. Further, it would have been obvious to one of ordinary skill in the art to heat the filament of Bluck to a temperature of, for example, above 800° C (i.e., above 400° C as claimed by the applicant) with the reasonable expectation of using a filament temperature that is capable of successfully activating the cleaning gas of Bluck. The exact temperature of the filament would have been optimized by one of ordinary skill in the art as a result / effective variable through routine experimentation depending on the desired activation level for the cleaning gas (i.e., higher temperature leads to higher activation), the specific cleaning gas used, and the reactivity and heat resistance of the filament. Regarding issue (3), Bluck does teach that films such as DLC are deposited on the walls of the chamber and that etching with hot filament-activated gases such as argon, fluorocarbons, chlorine-containing gases, hydrogen, and/or oxygen can be used to clean the walls of the chamber (Col.4, lines 6 – 46). Dietz teaches that, when utilizing a hot filament to activate a cleaning gas such as hydrogen (e.g., which is a cleaning gas taught by Bluck) in order to subsequently clean the walls of a chamber, surface contaminants such as carbon react with the cleaning gas to form a gaseous substance that is subsequently exhausted / removed from the chamber (Col.2, lines 39 – 62, and Col.3, lines 26 – 40). As such, the cleaning process of Bluck would have inherently converted at least a portion of the film deposited on the walls of the chamber into a gaseous substance. Further, it would have been obvious to one of ordinary skill in the art to remove the gaseous

substance from the chamber by exhausting the chamber as taught by Dietz with the reasonable expectation of (1) success, as the chamber of Bluck is clearly capable of being exhausted (Col.6, lines 59 – 63), and (2) obtaining the advantages of removing the undesirable contaminants in gaseous form from the chamber, such as preventing the gaseous material from building up in the chamber and re-depositing, thereby contaminating the chamber and the substrate therein. Regarding Claims 12 and 28, the combination of Bluck, Dietz, and Matsuyama also teaches that the chamber comprises a CVD apparatus and the method further comprises heating the hot element, supplying a material gas to the chamber, contacting the material gas with the hot element to cause decomposition and/or activation of the material gas by the hot element, and forming a deposited film which comprises at least one element from the material gas on a substrate (Figure 2, Col.1, lines 9 – 14, Col.6, lines 32 – 67, and Col.7, lines 1 – 6 of Bluck et al.).

15. Claims 13, 14, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (USPN 6,101,972) in view of Dietz et al. (USPN 4,452,642) and Matsuyama (USPN 5,149,375), and in further view of Iwasaki et al. (JP 03-226578 A).
16. The combination of Bluck, Dietz, and Matsuyama teaches all the limitations of Claims 13, 14, 29, and 30 as set forth above in paragraph 14, except for a method wherein at least part of a surface of an inner structure of the chamber is covered with platinum. However, Bluck does teach cleaning the chamber walls with

fluorocarbons (i.e., fluorine-based gaseous etchants) (Col.4, lines 37 – 46). Iwasaki teaches that, in order to improve the corrosion resistance of a device in which both deposition and etching take place (i.e., a device such as the one taught by Bluck), the inner surface of the chamber can be coated with a protective layer of platinum so that, even if the inside of the device is cleaned with a fluorine-based gaseous etchant, the internal surfaces are not corroded and the device can be used over a long period of time (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art to cover the inner surfaces of the chamber of Bluck with platinum as taught by Iwasaki with the reasonable expectation of successfully and advantageously protecting the inside of the chamber from corrosion by the fluorine-based gaseous etchants of Bluck, thereby increasing the useful life of the chamber.

17. Claims 15, 16, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (USPN 6,101,972) in view of Dietz et al. (USPN 4,452,642) and Matsuyama (USPN 5,149,375), and in further view of Hatano et al. (USPN 5,709,757).

18. The combination of Bluck, Dietz, and Matsuyama teaches all the limitations of Claims 15, 16, 31, and 32 as set forth above in paragraph 14, except for a method wherein the cleaning gas contains at least one of cleaning gases recited by the applicant in Claims 15, 16, 31, and 32. However, Bluck does teach fluorocarbons and chlorine-containing cleaning gases in general (Col.4, lines 44 – 45). Hatano teaches that the cleaning gases claimed by the applicant such as Cl_2, ClF_3, and NF_3

were known as chamber-wall cleaning gases at the time of the applicant's invention (Col.1, lines 19 – 41, and Col.6, lines 1 – 14). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the cleaning gases taught by Hatano as the cleaning gas in the process of Bluck with the reasonable expectation of successfully using a well-known, specific cleaning gas out of the broader genus of chlorine- and fluorine-containing cleaning gases taught by Bluck (i.e., selecting a known species out of a broader disclosed genus).

19. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (USPN 6,101,972) in view of Dietz et al. (USPN 4,452,642) and Matsuyama (USPN 5,149,375), and in further view of Ono et al. (USPN 4,450,031).
20. The combination of Bluck, Dietz, and Matsuyama teaches all the limitations of Claims 21 and 22 as set forth above in paragraph 14, except for a method wherein the hot element is provided outside of the chamber, and the cleaning gas is contacted with the hot element and then introduced into the chamber. Specifically, the hot element of Bluck is inside the chamber (see Figure 2). However, the precise location of the filament(s) of Bluck does not appear to be critical to the process. Ono teaches a similar hot filament etching / cleaning gas activation process in which the filament is located outside of the chamber, and the cleaning gas is contacted with the hot element and then introduced into the chamber (Figure 1 and Col.1, lines 28 – 45). In addition, by using a separate ionization chamber surrounded by a solenoid magnet, the ionization efficiency (i.e., the activation efficiency) of the gas can be

increased (Col.1, lines 45 – 46). Therefore, it would have been obvious to one of ordinary skill in the art to locate the hot-filament(s) of Bluck outside of the chamber and to contact the cleaning gas with the hot-filament(s) prior to introducing the gas into the chamber (as taught by Ono) with the reasonable expectation of success (i.e., successfully activating the cleaning gas by using a hot-filament) and obtaining the benefits of increased gas ionization (i.e., activation) efficiency.

21. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (USPN 6,101,972) in view of Dietz et al. (USPN 4,452,642) and Matsuyama (USPN 5,149,375), in further view of Ono et al. (USPN 4,450,031), and in further view of Iwasaki et al. (JP 03-226578 A).
22. The combination of Bluck, Dietz, Matsuyama, and Ono teaches all the limitation of Claims 23 and 24 as set forth above in paragraph 20, except for a method wherein at least part of a surface of an inner structure of the chamber is covered with platinum. However, this limitation would have been obvious to one of ordinary skill in the art in light of Iwasaki for the reasons set forth above in paragraph 16.

23. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bluck et al. (USPN 6,101,972) in view of Dietz et al. (USPN 4,452,642) and Matsuyama (USPN 5,149,375), in further view of Ono et al. (USPN 4,450,031), and in further view of Hatano et al. (USPN 5,709,757).

24. The combination of Bluck, Dietz, Matsuyama, and Ono teaches all the limitation of Claims 25 and 26 as set forth above in paragraph 20, except for a method wherein the cleaning gas contains at least one of cleaning gases recited by the applicant in Claims 25 and 26. However, this limitation would have been obvious to one of ordinary skill in the art in light of Hatano for the reasons set forth above in paragraph 18.

Double Patenting

25. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969). A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

26. Claims 11 – 16 and 27 – 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 – 12 of U.S. Patent No. 6,375,756 B1 in view of Matsuyama (USPN 5,149,375).

27. Regarding Claims 11 – 16 and 27 – 32, Claims 1 – 12 of U.S. Patent No. 6,375,756 B1 teach the applicant's claimed specific process steps for removing and depositing films in a chamber (Claims 1 and 2 of '756), heating the hot element to 400° C or higher (Claim 1 of '756), covering at least a part of a surface of an inner structure of the chamber with platinum (Claims 3 and 8 of '756), the applicant's claimed cleaning gases (Claims 4 and 9 of '756), and the fact that the walls of the chamber specifically are cleaned of a deposited film (Claims 7 and 12 of '756). Claims 1 – 12 of U.S. Patent No. 6,375,756 B1 do not explicitly teach that the hot element is located "away" from the deposited film and the walls of the chamber. However, the location of the hot element in the chamber of '756 does not appear to be critical to the process. Therefore, it would have been obvious to one of ordinary skill in the art to locate the hot element anywhere inside the chamber (i.e., including away from the walls of the chamber) with the reasonable expectation of successfully activating the cleaning / deposition gas as desired by Claims 1 – 12 of '756. In addition, Claims 1 – 12 of U.S. Patent No. 6,375,756 B1 do not explicitly teach that the hot element has at least a surface that comprises platinum. However, Claims 5, 6, 10, and 11 of '756 teach that the hot element can be made of various metals such as tungsten, tantalum, molybdenum, ruthenium, niobium, etc. Matsuyama teaches the

functional equivalence of the materials taught by '756 and platinum in regards to the fabrication of a hot-filament used to activate process gases (Col.9, lines 5 – 16). Therefore, it would have been obvious to one of ordinary skill in the art to use a platinum filament in the process of '756 with the reasonable expectation of success and obtaining similar results (i.e., successfully activating process gases using a hot-filament for subsequent cleaning or deposition steps).

28. Claims 21 – 26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 – 12 of U.S. Patent No. 6,375,756 B1 in view of Matsuyama (USPN 5,149,375), and in further view of Ono et al. (USPN 4,450,031).
29. The combination of Claims 1 – 12 of '756 and Matsuyama teaches all the limitations of Claims 21 – 26 as set forth above in paragraph 27, except for a method wherein the hot element is provided outside of the chamber, and the cleaning gas is contacted with the hot element and then introduced into the chamber. Specifically, the hot element of '756 is inside the chamber. However, the precise location of the hot element of '756 does not appear to be critical to the process. Ono teaches a similar hot filament etching / cleaning gas activation process in which the filament is located outside of the chamber, and the cleaning gas is contacted with the hot element and then introduced into the chamber (Figure 1 and Col.1, lines 28 – 45). In addition, by using a separate ionization chamber surrounded by a solenoid magnet, the ionization efficiency (i.e., the activation efficiency) of the gas can be increased (Col.1, lines 45 – 46). Therefore, it would have been obvious to one of ordinary skill

in the art to locate the hot element of '756 outside of the chamber and to contact the cleaning gas with the hot element prior to introducing the gas into the chamber (as taught by Ono) with the reasonable expectation of success (i.e., successfully activating the cleaning / deposition gas by using a hot element) and obtaining the benefits of increased gas ionization (i.e., activation) efficiency.

Response to Arguments

30. Applicant's arguments filed on 10/1/2002 have been fully considered but they are not persuasive. Specifically, the applicant's arguments are moot in view of the new grounds of rejection presented above.

Conclusion

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Both Suzuki (USPN 6,107,197) and Klebanoff et al. (USPN 6,192,897) teach cleaning / etching surfaces in a deposition chamber by utilizing a hot filament to activate the cleaning gas(es).

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

33. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

34. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Wesley D Markham
Examiner
Art Unit 1762

WDM
December 5, 2002

SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700